

**METHOD FOR SELECTING RECOMBINASE VARIANTS
WITH ALTERED SPECIFICITY
ABSTRACT OF THE DISCLOSURE**

Disclosed are variants of Cre recombinase that have broadened specificity for the site of recombination. Specifically, the disclosed variants mediate recombination between sequences other than the loxP sequence and other lox site sequences on which wild type Cre recombinase is active. In general, the disclosed Cre variants mediate efficient recombination between lox sites that wild type Cre can act on (referred to as wild type lox sites), between variant lox sites not efficiently utilized by wild type Cre (referred to as variant lox sites), and between a wild type lox site and a variant lox site. Also disclosed are methods of recombining nucleic acids using the disclosed Cre variants. For example, the disclosed Cre variants can be used in any method or technique where Cre recombinase (or other, similar recombinases such as FLP) can be used. In addition, the disclosed Cre variants allow different alternative recombinations to be performed since the Cre variants allow much more efficient recombination between wild type lox sites and variant lox sites. Control of such alternative recombination can be used to accomplish more sophisticated sequential recombinations to achieve results not possible with wild type Cre recombinase.